

**Listing of Claims:**

1. (Currently Amended) A ~~semiconductor optical device~~  
~~characterized by~~ super luminescent diode having a broad optical  
spectral characteristic whose center wavelength is in a range  
from approximately 800 nm to approximately 850 nm, and which has  
5 a spectral half bandwidth greater than or equal to a  
predetermined value, comprising:

a semiconductor substrate; and

an active layer which is formed ~~above~~ on a side of the  
semiconductor substrate, the active layer having a plurality of  
10 quantum wells which is formed from a plurality of barrier layers  
and a plurality of well layers ~~sandwiched among the plurality of~~  
formed between the barrier layers,

wherein ~~[[,]]~~ at least one ~~well layer~~ of the ~~plurality of~~  
well layers has a layer thickness within a range from  
15 approximately 2.5 nm to approximately 5 nm, and is formed from an  
 $\text{In}_{x_a}\text{Ga}_{(1-x_a)}\text{As}$  film, ~~and~~ a composition ratio  $x_a$  of the In ~~takes any~~  
~~one value~~ being within a range from approximately 0.05 to  
approximately 0.20, whereby the at least one well layer is formed  
as a strained well layer ~~in which~~ having a lattice distortion  
20 ~~brought about in the well layer takes any one~~ which has a value  
within a range from approximately 0.35% to approximately 1.5%,  
and

~~due to~~ wherein the strained well layer ~~being~~ is formed so as to have a bandgap wavelength different from ~~those~~ bandgap wavelengths of the other well layers. ~~, the semiconductor optical device is configured capable of representing, as an optical spectral characteristic, a broad optical spectral characteristic whose center wavelength is from approximately 800 nm to approximately 850 nm, and which has a spectral half bandwidth greater than or equal to a predetermined value.~~

Claim 2 (Canceled).

3. (Currently Amended) The ~~semiconductor optical device~~ super luminescent diode according to claim 1, ~~characterized in that~~ wherein the plurality of quantum wells ~~included~~ formed in the active layer ~~respectively~~ have substantially identical layer thickness thicknesses.

Claim 4-6 (Canceled).

7. (Currently Amended) The ~~semiconductor optical device~~ super luminescent diode according to claim 1, ~~characterized in that~~ wherein an n-GaAs substrate is used as the semiconductor substrate.

8. (Currently Amended) The ~~semiconductor optical device~~  
super luminescent diode according to claim ~~[[4]]~~ 1, ~~characterized~~  
~~in that the SLD comprises, as the semiconductor optical device~~  
further comprising:

5        a first cladding layer formed ~~above~~ on a first surface of  
the semiconductor substrate, wherein ~~[[;]]~~ the active layer is  
formed ~~above~~ on the first cladding layer;

         a second cladding layer formed ~~above~~ on the active layer;

         an etching blocking layer formed in the second cladding  
10 layer to divide the second cladding layer;

         a contact layer formed ~~above~~ on the second cladding layer;

         an insulating film formed ~~above~~ on the contact layer and  
~~above~~ on first and second regions of the etching blocking layer;

         a first electrode formed ~~above~~ on the insulating film; and

15        a second electrode formed on ~~a rear face~~ a second surface of  
the semiconductor substrate, which is opposite to the first  
surface; ~~and has~~

wherein said super luminescent diode includes:

         a ridge portion which serves as a gain region, the  
20 ridge portion being formed between the first and second regions  
of the etching blocking layer in a trapezoidal shape ~~above~~ so as  
to project from the etching blocking layer ~~at a central portion~~  
~~of the semiconductor optical device in a shorter direction~~; and

so as to extend in a stripe form ~~above the etching blocking layer~~  
25 ~~at a position from one~~ a first facet to a vicinity of a central  
portion of ~~the semiconductor optical device~~ said super  
luminescent diode in a longitudinal direction of ~~the~~  
~~semiconductor optical device~~ said super luminescent diode;

an absorption region which absorbs light and electric  
30 current, wherein the absorption region, ~~being~~ in which the active  
layer is formed, is formed in a stripe form in an inside of ~~the~~  
~~semiconductor optical device including the active layer at~~ said  
super luminescent diode so as to extend from a position adjacent  
to the ridge portion ~~from a~~ at the vicinity of the central  
35 portion to ~~another~~ a second facet of ~~the semiconductor optical~~  
~~device~~ said super luminescent diode in the longitudinal direction  
of ~~the semiconductor optical device~~ said super luminescent diode;

regions to which light is not guided, ~~the regions being~~  
which are formed at positions facing so as to extend along both  
40 ~~side portions~~ sides of the ridge portion; and

an antireflection coating which is formed at ~~one~~ the  
first facet ~~in the longitudinal direction of the semiconductor~~  
~~optical device~~ of said super luminescent diode.

Claims 9-17 (Canceled).